# PERVASIVE TECHNOLOGY TO REDUCE ROAD RAGE: A STUDY ON THE EFFECTS OF METABOLIC CHANGES IN INDIVIDUALS WHILE DRIVING

**Amy King** (Wade J. Mitchell, Joseph Defazio, Todd Shelton), Department of Media Arts & Science IU School of Informatics, Indiana University–Purdue University Indianapolis, Indianapolis, Indiana 46202

Since 1990, there have been 250,000 fatalities from car accidents in the United States (Warp, 2006). According to the United States Department of Transportation (nhtsa.dot.com), two-thirds of those fatalities are from accidents caused by road rage. That means 166,666 people died due to driver's inability to control their anger on the road. Road rage is a serious issue that should be addressed. Often times, people don't even realize they are becoming dangerously agitated until it is too late. The purpose of this study is to measure a drivers' reaction to diverse stimuli in a simulated environment in order to examine how raising the awareness of the symptoms described might allow the driver to modify his/her behavior before engaging in disastrous consequences. The stimuli used in testing for this study would include an array of graphics, videos and sounds. This study uses an Arduino board that connects to three bio-metric sensors which will track the users pulse, temperature and skin-conductivity. Whenever the human body is under mental stress, the parasympathetic activities of his/her heart decreases and the sympathetic activity increases (Rani, 2002). In other words, their pulse increases dramatically. Other signs of agitation include, but are not limited to: conductivity of skin increases and the tensing of muscles which causes the temperature of their extremities (fingers, hands and feet) to drop significantly. Upon IRB approval, this research will be conducted with fifty participants. The data extracted from testing will be analyzed and finding's reported.